



NCEES

*advancing licensure for
engineers and surveyors*

Vertical Forces (Gravity/Other) and Incidental Lateral Component of the Structural Engineering DEPTH Exam Specifications

Effective Beginning with the April 2018 Examination

The 4-hour **Vertical Forces (Gravity/Other) and Incidental Lateral** depth exam is offered in the afternoon on exam day. The depth modules of the Structural Engineering exam focus on a single area of practice in structural engineering. Examinees must choose either the **BUILDINGS** or the **BRIDGES** module. Examinees must work the same module on both components. That is, if bridges is the module chosen in the Vertical Forces component, then bridges must be the module chosen in the Lateral Forces component. All questions are constructed response (essay).

The exam uses the US Customary System (USCS) of units.

BUILDINGS

The **Vertical Forces (Gravity/Other) and Incidental Lateral** Structural Engineering depth exam in **BUILDINGS** covers loads, lateral earth pressures, analysis methods, general structural considerations (element design), structural systems integration (connections), and foundations and retaining structures. This 4-hour module contains one problem from each of the following areas:

- Steel structure
- Concrete structure
- Wood structure
- Masonry structure

All problems are equally weighted. At least one problem includes a multistory building, and at least one problem includes a foundation.

BRIDGES

The **Vertical Forces (Gravity/Other) and Incidental Lateral** Structural Engineering depth exam in **BRIDGES** covers gravity loads, superstructures, substructures, and lateral loads other than wind and seismic. This 4-hour module contains three problems, one from each of the following areas:

- Concrete superstructure (25% of your score)
- Other elements of bridges (e.g., culverts, abutments, retaining walls) (25% of your score)
- Steel superstructure (50% of your score)

STRUCTURAL ENGINEERING Design Standards¹

These standards apply to the Vertical and Lateral components of the Structural Engineering exam.

Effective Beginning with the October 2021 Examinations

ABBREVIATION	DESIGN STANDARD TITLE
AASHTO	<i>AASHTO LRFD Bridge Design Specifications, 8th edition, American Association of State Highway & Transportation Officials, Washington, DC.</i>
IBC	<i>International Building Code, 2018 edition, International Code Council, Falls Church, VA.</i>
ASCE 7	<i>Minimum Design Loads and Associated Criteria for Buildings and Other Structures, 2016 edition, American Society of Civil Engineers, Reston, VA.</i>
ACI 318	<i>Building Code Requirements for Structural Concrete, 2014 edition, American Concrete Institute, Farmington Hills, MI.</i>
AISC	<i>Steel Construction Manual, 15th edition, American Institute of Steel Construction, Chicago, IL.</i>
AISC	<i>Seismic Design Manual, 3rd edition, American Institute of Steel Construction, Chicago, IL.</i>
AISI S100	<i>North American Specification for the Design of Cold-Formed Steel Structural Members, 2016 edition, with AISI S240-15 and AISI S400-15/S1-16, American Iron and Steel Institute, Washington, DC.</i>
NDS	<i>National Design Specification for Wood Construction with NDS Supplement: Design Values for Wood Construction, 2018 edition, American Wood Council, Leesburg, VA.</i>
NDS	<i>Special Design Provisions for Wind and Seismic, 2015 edition, American Wood Council, Leesburg, VA.</i>
TMS 402/602	<i>Building Code Requirements and Specification for Masonry Structures, 2016 edition, The Masonry Society, Longmont, CO.</i>

Notes

- Solutions to exam questions that reference a standard of practice are scored based on this list. Solutions based on other editions or standards will not receive credit. All questions use the US Customary System (USCS) of units.